

CURRICULUM VITAE

ALISON SMILEY, PH.D., CCPE

Human Factors North Inc.

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DESIGNATION

Canadian Certified Professional Ergonomist – October 1999

Limited Licence Professional Engineers Ontario – September 2009

EDUCATION

Honours B.Sc. Applied Mathematics – 1970

University of Western Ontario, London, Ontario, Canada

M.A.Sc. Systems Design Engineering – 1972

Ph.D. Systems Design Engineering – 1978

University of Waterloo, Waterloo, Ontario, Canada

Thesis Title: Vehicle Steering Control: A Model of Learning

HONOURS & AWARDS

Appointed lifetime National Associate of the U.S. National Academy of Sciences. 2002.

Winner of the A.R. Lauer Safety Award given by the U.S. Human Factors and Ergonomics Society for outstanding contributions to the human factors aspects of highway safety. 1997.

Winner, with Carolyn MacGregor and Wendy Dunk, of the D. Grant Mickle Award given by the U.S. Transportation Research Board for the outstanding paper in the field of operation, safety and maintenance of transportation facilities. 1999.

PROFESSIONAL EXPERIENCE

Jan. 1984 – Present

President, Human Factors North Inc.

CURRENT CONTRACTS

MORR Transportation Consulting Ltd.:

- National guidelines for work zone safety in Canada for the Transportation Association of Canada

Ainley Graham & Associates Limited:

- Human factors assessment – Highway 33 between Collins Bay Road and Coverdale Drive for the City of Kingston
- Human factors assessment – Collins Bay Road intersection review (Highway 33) in Kingston, Ontario for the Ministry of Transportation, Ontario
- Human factors assessment – proposed lane configuration (re bike lanes) – Bath Road from Collins Bay Road to Coverdale Drive

MMM Group Limited:

- Highway 407 Phase 2 – interim conditions safety review
- Human factors assessment of ergonomic hazards for OC Transpo bus operators at level crossings
- Update of Geometric Design Guide for Canadian Roads for the Transportation Association of Canada

Various legal firms:

- Provide expert evidence on human factors issues in car, truck, train and boat accidents

COMPLETED CONTRACTS

Clients – Government:

Ministry of Transportation in Ontario:

- Review of driver sanction and remediation programs
- Study to assess the safety of the monitoring activities of driver examiners during the G2 road test
- Safety assessment of an at-grade intersection on Highway 17 near Sudbury
- Advise on human factors issues in work zones
- Assess driver distraction due to advertising displays
- Report on medical fitness and crash risk
- Survey amount and type of driving by Ontario drivers (Phase II)
- Evaluate prototype highway tourist signs for Ontario
- Perform a study on human factors affecting personal mobility
- Conduct comprehension and glance legibility testing of bilingual highway signs
- Report on effectiveness of demerit points in predicting future accidents
- Survey amount and type of driving by Ontario drivers (Phase I)
- Changeable message signs: literature review and driver survey
- Literature review of driving while suspended and design for a field study
- Evaluate safety vests for emergency patrollers
- Methods of evaluating driver response to signs, signals and markings

Transportation Development Centre – Transport Canada:

- Co-ordinate fatigue management program implementation at trucking companies in Montreal (with AlphaLogik, Inc.), Calgary (with SagaTech Electronics Inc.), and California (with Alertness Solutions). Analyze before and after corporate and driver measures to assess impacts on fatigue.

- Investigate, through literature review and laboratory, simulator and on-road testing, and provide recommendations to improve the conspicuity, alerting capabilities, and safety effectiveness of various highway-railway grade crossing elements
- Participate as a member of an Expert Panel convened by TDC to examine options for elapsed time window duration to be included in the proposed revised Canadian hours of service regulations for commercial vehicle drivers
- Research plan concerning the investigation of commercial motor vehicle driver cumulative fatigue recovery periods
- Literature review concerning the investigation of commercial motor vehicle driver cumulative fatigue recovery periods
- Advice on schedules of hours of work regulations for commercial vehicle drivers
- Shift schedule comparison for the Canadian Coast Guard
- Literature review and evaluation of wearability of life preservers
- Literature review related to 12 hour shifts for marine traffic regulators
- Wayfinding techniques for the visually impaired
- Human stress in vehicle operation: literature review

Transport Canada:

- Report on the compatibility of right-hand drive vehicles with the current Canadian road infrastructure
- Study of the environmental, economic, safety and social benefits of roundabouts
- Research services for addressing the safety of driving while using in-vehicle telematics devices: Driving simulator studies
- Conduct human factors investigations into intelligent transportation systems
- Behavioural adaptation to fatigue warning systems
- Inventory of road safety databases in Canada
- An experimental study on the behavioural adaptation of drivers to antilock brake systems

A/E Group Inc. (under contract to the U.S. Federal Highway Safety Administration):

- Advise on human factors issues of the geometric design laboratory: operations/support

Agence metropolitaine de transport (Montréal):

- Road safety audit in Montréal (Blvd. Pie-IX)

Atomic Energy Control Board:

- Evaluate methods of verifying operations in nuclear plants
- Review of 12-hour shifts at nuclear generating stations
- Assess on-the-job performance monitoring systems for use by AECB field staff
- Methods for analysis of operator diagnosis errors in nuclear power plants

Alberta Transportation

- Provide guidance on driver fatigue signs from a human factors perspective

Bellomo-McGee (under contract to the U.S. Federal Highway Administration):

- Human factors conceptual requirements for an interactive highway design model, site visit to high crash locations to identify driver error concerns

Canadian Coast Guard:

- Assess shift schedules at Rescue Co-ordination Centres
- Workload analysis – CCG Rescue Vessel (shiftwork)

Canadian Human Rights Commission:

- Assess uncorrected visual acuity standard for railway brakepersons

Canadian Nuclear Safety Commission:

- Review of criteria for assessing shift schedules in the nuclear industry

City of Ottawa:

- Human factors review of driver distraction concerns re proposed streetscaping plan at Preston Street and Gladstone Avenue

City of Toronto, Transportation Services:

- Research regarding driver distraction and animated advertising in the City of Toronto
- On-road testing of street name sign legibility

Commission of Inquiry: Hinton Rail Collision

- Assess human factors issues involved in the train accident at Hinton, Alberta, February 8, 1986

Defence and Civil Institute for Environmental Medicine (DCIEM):

- Development of a human engineering evaluation for Shipboard Integrated Machinery Control Systems (SHINMACS)

EL-MAR Inc. (for Transport Canada):

- Advise on methodology for collecting driver eye movements

Grand River Transit – Kitchener/Waterloo:

- Assessment of bus driver workload regarding stop announcements

Greater Toronto Airport Groundside Association:

- Laboratory testing of airport signs
- Value engineering study concerning the roadways accessing the new terminal at Pearson International Airport
- On-road evaluation of signs for new terminal at Pearson International Airport

Hydro One:

- Conduct a crash analysis and provide countermeasure recommendations

Insurance Bureau of Canada:

- Study of the impact of cell phone use on the behaviour of novice as compared to experienced drivers in driver simulator (with the University of Calgary) and on-road tests

National Research Council:

- Introduction of low speed vehicles in mixed traffic on public roads

Nexient Learning Inc. (for Canada Post Corporation):

- Management of an ergonomic risk assessment for the position of in-vehicle rural and suburban mail carriers

Ontario Nuclear Safety Review:

- Examine and report on human factors aspects of safe operation of the nuclear generating stations of Ontario Hydro (emphasizing shiftwork and drug and alcohol effects)

Parks Canada:

- Study of the safety of using a new green background colour for Parks Canada signing and on-road and laboratory testing with a representative group of drivers to provide an empirically sound basis for layout of signs and selection of retro-reflectivity of sign background
- Wayfinding analysis and preparation of sign plan for Point Pelee National Park
- A study on the safety of traffic-related signs for Parks Canada roadways

Province of New Brunswick – Transportation:

- Study to develop more effective countermeasures for moose-vehicle collisions along Highway 7.
- Scenic drive signage review

Public Review Panel on Tanker Safety and Marine Spills Response Capability:

- Review the human factors issues related to oil tanker spills

Public Works & Government Services Canada & Human Resources Development Canada:

- Assess wayfinding and signing needs in an Employment Insurance office

Railway Transport Committee:

- Member of a committee on mandatory rest provisions for railway personnel

Transportation Association of Canada

- Consulting services to develop guidelines for driver comprehension testing

Transportation Safety Board:

- Analysis of work-rest schedules and other related issues involved in the OC Transpo bus and ViaRail train accident of September 18, 2013

Transportation Research Board (U.S.):

- Update of Report #218, *Transportation in an Aging Society*, Chapter on Travel Behaviour

U.S. Dept. of Transport/Vehicle Research and Test Centre:

- Participate in two meetings of the IVHS Human Factors/CAS Expert Panel

York Region Rapid Transit Consortium:

- Human factors assessment of proposed York Region street signs

York Region Transportation and Works:

- Human factors and road safety issues in the freeway to arterial transition Highway 427 and Zenway Boulevard

Clients – Engineering:

ARUP:

- Human behaviour input of safety assessment for Don Valley Parkway bus by-pass lanes environmental assessment – Toronto

AlliedSignal Aerospace Canada:

- Evaluate pilot decision-making related to anti-icing and de-icing, in order to develop the interface for a Clean Wing Detection System (CWDS™)

CIMA+:

- Human factors analysis at Trudeau Airport, Montréal

CP Rail (for Rail Safety Consulting, a Division of TUV Rheinland Mobility, Inc.)

- Evaluation of a recommended practice document related to the maintenance of highway rail crossings

Collings Johnston Inc.:

- Human factors issues in the design of bridges, tunnels and transition zones at the proposed Fraser River crossing in British Columbia

D.A. Watt Consulting:

- 2009 high collision locations safety review (Calgary)

Delcan Corporation:

- Development of dynamic message signs in York Region under the ITS Preliminary Design for the H2 vivaNext Corridor contract
- Participate in value engineering study re the Highway 407 Transitway
- Human factors review of the Highway 26 new alignment – Collingwood to Wasaga Beach
- Human factors contribution involved in the development of a blueprint and preliminary design of an intelligent Changeable Message Sign writer leading to software design and implementation
- Conduct human factors component of highway safety training courses
- Advise on urban directional signing in Israel
- Advise on human factors and safety issues for the West Transitway Extension of Highway 417 in Ottawa
- Review of the safety of pedestrian island crossovers and pedestrian refuge islands

Delphi – MRC (now WSP/MMM Group):

- Signage and speed management for Halifax Harbour Bridges
- Road design in Prince Edward Island
- Highway 406 – detail design review, simulator testing of roundabout option
- Cobequid Pass toll plaza signing and speed management
- Highway 401/427
- Speed management review of toll plaza approaches – Halifax-Dartmouth Bridge Commission
- Cobequid Pass toll signage – Nova Scotia
- Highway 406/Main Street Intersection
- King Edward/Cathcart follow-on review – City of Ottawa
- Highway 5/8 Peters Corners
- Human factors contribution involved in the Highway 7 expansion (twinning) in Carleton Place (for MTO)
- Assess safety of an at-grade intersection on Highway 111 in Halifax, Nova Scotia

- Assist in the development of a computer simulation for testing proposed designs for a railway crossing at Fallowfield Road (for the municipality of Ottawa-Carleton)
- Literature review re pedestrian and driver needs at intersections – City of Ottawa
- Advice on signing for Halifax Bridge Commission Toll Plazas

Dillon Consulting Limited:

- Contribute human factors content to Ontario Traffic Manual: Volume 1 – Introduction (and, in particular, Book 1B Sign Design Principles); Volume 5 – Regulatory Signs; Volume 6 – Warning Signs; Volume 7 – Temporary Conditions

Earth Tech (Canada) Inc.:

- Advice and testing of airport infield signs
- Review of proposed interchange at Highway 115 and Highway 7

EBA, A Tetra Tech Company:

- Human factors advice regarding a bilingual message library for Highway 1 – variable message signs for Parks Canada
- Human factors advice regarding a bilingual message library for Alaska Highway changeable message signs

G.D. Hamilton & Associates (for the Transportation Association of Canada):

- Study of in-service road safety operational review guidelines

Gresham, Smith & Partners (Nashville, Tennessee):

- Signage at Denver International Airport
- Wayfinding and signing guidelines for airport terminals and landside
- Wayfinding study at San Francisco International Airport

IBI Group:

- Human factors component of study on bilingual variable message signs for the Ministry of Transportation, Ontario – Phases 1 and 2
- Human factors contribution to a variable speed limit system feasibility and preliminary design study
- Review of human factors literature on bilingual signing, assisting in development of bilingual formats for testing, and conducting on-road and laboratory testing of reading time requirements and message comprehension
- Comprehension testing of sign advising locations of red light cameras (for MTO)
- Human factors advice re highway signage and context-sensitive design issues involved in the upgrading of the Sea-to-Sky Highway in British Columbia
- Review of adequacy of Ontario signing standards and recommendations for changes

HDR Corporation/iTRANS Consulting Inc.:

- Evaluation of the visibility of a new checkerboard and lighting system for snow maintenance equipment
- Participate in value engineering study of snowplow conspicuity
- Participate in Detroit River IC value engineering Study – Windsor, Ontario
- Human factors contribution to the Highway Safety Manual – Amplified Research Plan (for U.S. NCHRP)

- Traffic and Ergonomic Safety Panel Member (for Canada Post)
- Provide technical advice and guidance with respect to documenting the effectiveness of various types and applications of transverse rumble strips (for Transportation Association of Canada)
- Human factors contribution to a study of pavement marking materials and markers (for U.S. NCHRP)
- Participate in value engineering study of Highway 17 in Sault Ste. Marie (for MTO)
- Participate in value engineering study of Highway 61 in Thunder Bay (for MTO)
- Participate in value engineering study of Highway 7 (for MTO)
- Manitoba increased speed limits study
- Participate in value engineering study of Highway 26, Collingwood (for MTO)
- Participation in value engineering study of Highway 402 approaching the Bluewater Bridge (MTO)
- Human factors review of freeway to freeway guide signing at Highways 403 and 407 (MTO)
- Human factors review of reconstruction plans for Highway 6 (MTO)
- Human factors contribution to a safety evaluation of raised pavement markers (for U.S. NCHRP)
- Development of human factors portion of traffic sign course (MTO)
- Human factors component of an integrated management process to reduce highway injuries and fatalities state-wide
- Review of safety issues with regard to Highway 407 and the lighting of a sports park in Vaughan
- Participate in Highway 6/Highway 401 (Guelph) value engineering study

KPMG (for MTO):

- Advise on human factors issues in regard to commercial signing

MaineWay Services (for the U.S. Federal Motor Carrier Safety Administration):

- Review literature relevant to new U.S. proposed hours of service regulations

MMM Group Limited:

- Highway 17 value engineering study – North Bay
- Peer review of report on Ontario bikeway planning and design guidelines
- Participate in value engineering study concerning the widening of Highway 401 between Highway 410 and Mississauga Road
- 407ETR extension – sign plan review

McCormick Rankin Corporation:

- Human factors review of the Highway 417/17 twinning (Campbell to Scheel)
- Human factors contribution to a safety review of Highway 403 near Hamilton, Ontario
- Human factors review of the 4-lane to 2-lane transition from Highway 417 to Regional Road 29 at Arnprior, Ontario
- Human factors review of proposed interchange construction on Highway 40 in Sarnia
- Evaluate bilingual signing on changeable message signs
- Advise on visibility of changeable message signs

Morrison Hershfield (for GO Transit):

- Ergonomic assessment of a rail platform passenger warning system

Morrison Hershfield Limited (for MTO):

- Human factors consultation for the Blessington Bridge hybrid minor widening/partial crossover alternative

Jouko A. Parviainen and Associates (for MTO):

- Assess human factors issues in design of high technology systems in vehicles

F.J. Reinders & Associates Limited (for MTO):

- Information load and comprehension testing for new tourist signs on Ontario highways

Ryerson University (for Transport Canada):

- Study of the causes of motor vehicle collisions – Phase I

SLF Joint Venture:

- Assess safety and speed-reducing countermeasures for a freeway transition area (Highway 407)
- Review of Highway 407 toll road signing prior to opening

Stantec Consulting Ltd.:

- Provide human factors consulting services regarding preparation of the Canadian Guide to 3R/4R for the Transportation Association of Canada

Synectics Transportation Consultants Inc. (for MTO):

- Advise on evaluation of human behaviour in traffic signal dilemma zones
- Contribute human factors content to Ontario Traffic Manual: Volume 11 – Delineation

Totten Sims Hubicki (for MTO):

- Human factors contribution concerning freeway to highway transition zones for engineering study of Highway 7 Carleton Place
- Review signing plan for Garden City Skyway Rehabilitation project
- Participate in a Value Engineering Study concerning lane width standards

TransAnalytics LLC:

- Conduct a computer-based hazard detection tracking exercise

UMA Engineering Limited:

- Human factors advice regarding direct access interchanges (for MTO)
- Assess driver distraction caused by low-flying aircraft near Pearson Airport (for Public Works and Government Services Canada)

URS Canada Inc.:

- Human factors component re widening of Highway 410 from Highway 401 to Queen Street
- Human factors component re widening of Highway 401 from Courtice, Ontario to the Durham region boundary
- Human factors component re widening of Highway 401 from the Credit River to Trafalgar Road
- Human factors component re widening of Highway 401 from Trafalgar Road to Regional Road 25

- Human factors review for the Highway 69 four-laning – Sudbury
- Human factors assessment of the proposed Don Valley Parkway High Occupancy Vehicle ramp
- Review of the safety of Highway 402 ramp entrances in the vicinity of Bluewater Bridge
- Review of the safety of a truck haul route

Westat Inc. (for U.S. NCHRP):

- Comprehensive human factors guidelines for road systems

Clients – Universities:

Concordia University, Montréal:

- Advise on development of an automobile simulator for training and rehabilitation of drivers with disabilities

Ottawa Civic Hospital & Victoria Hospital, London, Ontario:

- Develop a laboratory driving skills test for sleep apnea patients

University of Groningen, Traffic Research Centre

- Assess human factors issues in design of generic intelligent driver support systems

Université Laval, Québec:

- Study individual differences in drivers in their behavioural adaptation to technological improvements in vehicles (e.g. anti-lock brakes)

University of Michigan, Transportation Research Institute:

- Participation on expert panel to advise on U.S. Hours of Service Regulations

University of Montréal:

- Advise on human factors issues in aggressive driving and “road rage”

University of Toronto, John B. Robarts Library:

- Assess information sign requirements for Robarts Library

Clients – Legal:

Agro Zaffiro LLP	Alexander Holburn Beaudin & Lang LLP	Aronovitch Macaulay Rollo LLP	Bachmann Personal Injury Law
Bayne Sellar Boxall	Beard Winter LLP	Bennett Jones LLP	Bergeron Clifford LLP
Blaney McMurtry LLP	Bogoroch & Assoc. LLP	Borden Ladner Gervais LLP	Bryan & Company LLP
Burke-Robertson LLP	Campney & Murphy	Carson & Nicholson (U.S.)	Cassels Brock & Blackwell LLP
Conte & Associates	Cox & Palmer	Dutton Brock LLP	Dyer Brown LLP
Evans Philp LLP	Fasken Martineau DuMoulin LLP	Fennemore Craig (U.S.)	Fireman Wolfe LLP
Forbes Chochla LLP	Fraser Milner Casgrain LLP	Gardiner Roberts LLP	Gibson Dunn & Crutcher LLP (U.S.)
Gluckstein & Associates	Gorman Barristers	Gowland, Boriss	Gowling Lafleur Henderson LLP

Guild Yule & Company LLP	Harrison Pensa LLP	Hays McConn Rice & Pickering (U.S.)	Huie, Fernambucq & Stewart LLP
Hughes Amys LLP	Hungerford Tomyne Lawrenson Nichols	Kay Shipley McVey & Smith LLP	Kelly Santini LLP
Kitchen Kitchen Simeson & McFarlane	Lawson McGrenere LLP	Laxton Glass LLP	Lerners LLP
Levin Barristers	Lilly, Anderson, Morgan	Lindgren, Blais, Frank & Illingworth	Lindsay Kennedy LLP
Lipman, Zener & Waxman LLP	MacGillivray Law Office, Inc.	Mackesy, Smye LLP	Martin & Hillyer
McCall Dawson Osterberg Handler LLP	McCutcheon Blanton Rhodes & Johnson LLP (U.S.)	McKenzie Lake Lawyers LLP	McLeish Orlando LLP
Michael Finkelstein & Associates (U.S.)	Miller Thomson LLP	Min. of the Attorney General – N.B.	Ministry of the Attorney General – Ontario
Mollison, McCormick	Monteith, Baker & Johnston	MMW LLP	Nancy Ralph & Associates
Nelligan O'Brien Payne LLP	Oatley, Vigmond LLP	Petker & Associates	Quinlan Abrioux
Rachlin & Wolfson LLP	Ransmeier & Spellman PC (U.S.)	Raphael Partners LLP	Regan Desjardins LLP
Riley, McGivney, Ryder	Rogers Partners LLP	Romano Law Firm	Samis & Company
Shillingtons LLP	Shook Wickham Bishop & Field	Sim, Hughes, Ashton & McKay LLP	Siskinds LLP
Sokoloff Lawyers	Stewart McKelvey	Stieber Berlach LLP	The Morris Law Group
Thompson, O'Neil & Vanderveen (U.S.)	Thomson Rogers LLP	Toronto Transit Commission Legal Dept.	Vehslage & Lahr LLP (U.S.)
Waldeck Matteuzzi & Sloan (U.S.)	Wallbridge, Wallbridge	Zarek Taylor Grossman Hanrahan LLP	Zuber & Company LLP

Cases – examples only from approximately 350 cases:

Richard vs. Regina (2007):

- Testified on human factors issues in accident involving signing and truck run-off-road on curve

Borges vs. Halberthal (2005):

- Testified on human factors issues in accident involving running a red light

Inquest into the 89-vehicle fog accident on Highway 401 near Windsor (2000):

- Testified at the inquest in Windsor, Ontario

Inquest into the death of a construction worker on Highway 401 near Windsor, Ontario (2000):

- Testified at the inquest in Wallaceburg, Ontario

Inquest into a tractor-trailer accident on Highway 400 (1996):

- Testified at the inquest in Barrie, Ontario

Regina vs. Baragar (1989):

- Testified on human factors issues in accident involving running a stop sign

State of New Jersey vs. Chamberlain (1987):

- Attorney General's Office: Opinion on contribution of effects of marijuana to an intersection collision

Smith Transfer vs. Challenger Motor Freight (1987):

- Testified on contribution of fatigue to a truck trailer collision

Commission of Inquiry into the Hinton Train Collision (1986):

- Testified on human factors related to the Hinton Train Collision

Clients – Other:

Alberta Motor Association (for the CAA Foundation for Traffic Safety):

- Analysis of cellular phone use and driving research

Canadian Automobile Association:

- Road and traffic control device design – older drivers and safety

Ference Weicker & Company (for ICBC):

- Review of Insurance Corporation of British Columbia traffic safety programs (i.e. photo radar, graduated licensing, road improvements, red light camera, vehicle impoundment, speed corridor enforcement)

Fondation MAIF (France):

- Evaluation of parents' understanding of the capabilities of teenage drivers
- Study to review the effectiveness of driver training and licensing programs in reducing road crashes
- Evaluation of parents' understanding of children's capabilities as pedestrians

General Mills Canada Inc.

- Advise on shift schedules

ITT Industries – Systems Division (for U.S. FHWA):

- Human factors analysis of gap acceptance at skew and horizontal curve intersections compared to right angle intersections

MRI Global (for U.S. Federal Highway Administration):

- Human factors component of the analysis of the SHRP2 naturalistic driving study data re the evaluation of offset left-turn lanes
- Human factors component of study of factors contributing to median encroachments and cross-median crashes
- Human factors component of the Comprehensive Highway Safety Improvement Model
- Development of a 3-day course on the fundamentals of highway safety improvement

Southern California Research Institute:

- Driver simulator testing of the effects of alcohol on young subjects with various drinking histories

Toronto Hospital:

- Conduct testing of effects of anaesthetic on driving simulator performance

Toronto Transit Commission:

- Human factors study to determine whether mandatory stop announcements on surface routes would increase bus and streetcar operators' distraction levels to a significant degree

Transportation Association of Canada:

- Develop outline for human factors specifications of changeable message signs
- Develop national research agenda on safety and human factors research

Vanity Software Publishing Corporation:

- Consulting on design of an exercise software program

January 1983 – December 1990

President, Humachine Incorporated

Contracts on inattention, drugs, alcohol and driver performance for:

- Calspan Corporation, Buffalo, New York
- AES Data Ltd., Streetsville, Ontario
- Sunnybrook Hospital, Toronto, Ontario
- Vector Enterprises Inc., Santa Monica, California

July 1981 – February, 1982

Design Engineer, Ontario Hydro

Projects involved human factors issues in control room and panel design

April 1978 – June 1981

Research Scientist, Southern California Research Institute

Managed large-scale projects studying drug and alcohol effects on perceptual-motor performance of human subjects

September 1974 – April 1978

Doctoral Student, Department of Systems Design

University of Waterloo, Ontario, Canada

January 1972 – November 1974

Research Officer I, National Research Council of Canada

Responsible for initiating and managing projects involving use of an instrumented car to study the effects of headlighting, experience, fatigue and drug use on driver behaviour

TEACHING EXPERIENCE

Adjunct Professor

Dept. of Mechanical & Industrial Engineering, University of Toronto:

- IND 305F, An Introduction to Human Factors, 1983
- MIE1401F, Workspace Design, 1985 – 93, 1995 – 2001
- IND 325S, Human-Machine System Models, 1986
- MIE 445S, Case Studies In Human Factors, 1988 – 91, 1993 – 2001
- MIE 345H1F, Case Studies in Human Factors, 2005 – 2010
- MIE 345H1F, Case Studies in Human Factors, 2012
- MIE 1414, Human Factors in Transportation, 2012
- MIE 1414, Human Factors in Transportation, 2014
- MIE 1414, Human Factors in Transportation, 2015
- MIE 1414, Human Factors in Transportation, 2016

Adjunct Professor

Dept. of Civil Engineering Ryerson University:

- CV8404 Human Factors and Traffic Safety, 2007

School for Human Biology, University of Guelph:

75-375, Ergonomics, September – December 1987

STUDENTS SUPERVISED

Master's Theses:

- Daniel Fok – *Wayfinding To and From Public Facility 1 – 2006*
- Daan Beijer – *Driver Visual Search in Relation to Freeway Advertising Signs – 2002*
- Stephanie A. Scollard – *Implementation of a Successful Ergonomics Program – 1996*
- Brad Donaldson – *Ergonomic Task Survey for Workplace Problem and Solution Identification – 1993*

Doctoral Theses:

- Leo Donati – *Human Factors in the Field: Case Studies in Accident Investigation – 2003*
- Mehdi Gousheh – *Aging and Shiftwork Tolerance – 1999*
- Kathryn Woodcock-Webb – *Causal Reasoning in Industrial Safety Specialists – 1996*

PROFESSIONAL MEMBERSHIPS

Canadian College for the Certification of Professional Ergonomists:

- Founding Chair of the Board (1998 – 2002)
- Member

Association of Canadian Ergonomists:

- Fellow
- Full Member
- Past President 1988
- Newsletter Editor

Human Factors and Ergonomics Society (U.S.):

- Member

COMMITTEES AND BOARDS

Editorial Board: *Accident Analysis and Prevention*, 1996 – 2000, 2002 – present

ITS Canada: Board of Directors, 1996 – 1998

ISO Committee TC 204: Transport Informatics and Control Systems

U.S. National Research Council (Transportation Research Board):

- Safety Lessons from Benchmark Nations Committee: 2007 – present
- Second Strategic Highway Safety Program (SHRP II) Safety Technical Coordinating Committee: April 2006 – present
- Committee on Research Priorities and Coordination in Highway Infrastructure and Operations Safety: 2005 – 2008. Publication: Transportation Research Board Special Report 292 – *Safety Research on Highway Infrastructure and Operations: Improving Priorities, Coordination, and Quality*. 2008.
- Committee for the Review of the Intelligent Vehicle Initiative: April 1999 – 2004
- Chair, Group 3 Council, Operations and Safety and Maintenance of Transportation Facilities: 1998 – 2001
- Section B, Users and Vehicles: Chair, 1996 – 1998
- Vehicle User Characteristics Committee: Chair, 1989 – 1996
- Committee for an Assessment of the Capacity and Demand for the National Advanced Driving Simulator (NADS), 1995
- Committee on Alternate Blood Alcohol Concentration Standards for Commercial Vehicle Operators, 1987

NCHRP Panel Project 20-58(02), FY 2002, *Detailed Planning on Making a Significant Improvement in Highway Safety*, Sponsored by AASHTO in co-operation with the U.S. Federal Highway Administration, 2002.

NCHRP Panel Project 3-42, FY'91, *Determination of Cost-Safety-Effective Stopping Sight Distances*, sponsored by AASHTO in co-operation with the U.S. Federal Highway Administration, 1992 – 1996

Advisory Panel to National Institute on Drug Abuse and National Institute on Alcohol Abuse and Addiction, in reference to purchase of a driving simulator, 1985

CONFERENCES AND WORKSHOPS

Organizer and Presenter:

Low-cost simulators for training and testing, Conference Session TRB, January 1982.

Cognitive measures of driving performance, Human Factors Workshop TRB, January 1986.

Truck driving and fatigue, Human Factors Workshop TRB, January 1988.

Simulation: From needs to design, Human Factors Workshop TRB, January 1991.

Organizer (with R.E. Dewar and P. Olson) for Canadian Association of Technical Accident Investigation and Reconstruction (CATAIR) *Daytime and nighttime on-road workshops* on speed, distance, headway, time estimates, sign reading, and pedestrian visibility, August 1994.

On-road measures of driver performance, Human Factors Workshop TRB, January 1995.

Tutorial on *Application of human factors research to traffic safety*, VTI/TRB Conference on Road Safety, Prague, Czech Republic, September 1995.

Human factors and traffic accident investigation, International Conference on Traffic and Transport Psychology, Valencia, Spain, May 1996.

Human factors and geometric design, Conference Session, TRB, January, 1997.

Design consistency and driver expectancy. Conference Session, TRB, January 1998.

Human factors and pedestrian accidents. Presented at the Accident Reconstruction Training Course at the B.C. Justice Institute, Vancouver, B.C. October 2002.

Slowing drivers down – What works? What doesn't? Human Factors Workshop TRB, January 2005 (Co-chair: Kay Fitzpatrick).

Applied human factors principles in emerging methods for safety. Human Factors workshop TRB. January 2006 (Co-chair: Geni Bahar).

Presenter:

On-road and laboratory evaluation of bilingual variable message signs. Presented at the International Conference on Road Safety and Simulation, Rome, Italy. November 2007.

An evaluation of parents' understanding of the capabilities of teenage drivers. Presented at the 18th Annual Canadian Multidisciplinary Road Safety Conference, Whistler, B.C. June 2008.

Human factors approach to design exceptions. Presented at the annual conference of the Transportation Association of Canada. September 2008.

Human factors causes of collisions: To err is human, to forgive, design. Presented at the 1st International Conference on Urban Traffic Safety, Edmonton, Alberta, March 2009.

Driven to distraction. Presented at the 2nd International Conference on Urban Traffic Safety, Edmonton, Alberta, April 2010.

Human factors causes of collisions: To err is human, to forgive, design. Presented at the Halifax Regional Insurance Seminar, Halifax N.S., May 2010.

Future directions in safety modelling. Presented at the 4th International Symposium on Highway Geometric Design, Valencia, Spain. June 2010.

Senior driving: Changes, adaptation and Safety. Presented at the 7th International Conference on Urban Traffic Safety, Edmonton, Alberta, April 2015.

TRAFFIC SAFETY COURSES DEVELOPED AND TAUGHT

Science of highway safety (with Geni Bahar), presented to the Ministry of Transportation in Ontario in North Bay, Kingston, Thunder Bay and Downsview. Started in 1998.

Human factors in traffic safety – two-day course (with R.E. Dewar and G. Alexander):

- Insurance Corporation of British Columbia, May 1997
- State of Maryland, October 1997 and November 1999
- Manitoba Public Insurance, February 2001 and September 2002

An introduction to road safety science – three-day course (with Geni Bahar), Toronto, Ontario – June and October 2001, April 2002, and March 2003.

An introduction to safety conscious planning practice – three-day course (with Geni Bahar), presented to traffic professionals of the Maricopa Association of Governments, Phoenix, Arizona – May 2003.

Human factors & explicit road safety – two-day course (with Geni Bahar), presented to traffic and highway engineers and other transportation professionals, Vancouver, B.C. – October 2003.

An introduction to road safety science (with Geni Bahar), Ministry of Transportation in Ontario, London, Ontario – May 2004 and March 2008.

New Approaches to Highway Safety Development for PerformTech Inc. (National Highway Institute contract) 2005 – 2011. Together with Geni Bahar of iTRANS Consulting Inc., developed and have taught this course to approximately 500 traffic professionals with Geni Bahar or Dr. Lindsay Griffin in New York, Indianapolis, Nashville, Atlanta, Miami, Deland, Baton Rouge, Connecticut, Arlington, Oakland, Los Angeles, Concord, Jackson, Columbia, Jefferson City, Lima, Harrisburg and Denver.

Human factors & explicit road safety – two-day course (with Geni Bahar), presented to traffic and highway engineers and other transportation professionals, Toronto, Ontario – January 2006, North Bay, Ontario – March 2006, Toronto, Ontario – November 2007, April 2009, February 2011 and April 2012, Québec City, Québec – November 2009.

Human factors in traffic safety. One-day lecture presented at the Provincial Police Academy of the Ontario Provincial Police: 2001 – 2003 and 2005 – 2011, 2013.

PUBLICATIONS

1. Smiley, A., LeBlanc, E., French, I., and Burford, R. The combined effects of alcohol and common psychoactive drugs: field studies with an instrumented automobile. *Canadian Journal of Forensic Medicine*. Vol. 8(2), June 1975.
2. Fraser, T.M., Smiley, A.M., Mottershead, B.E. Human response to buffeting in an all-terrain vehicle. *Aviation, Space and Environmental Medicine*, No. 47, 1976.
3. Smiley, A.M., Reid, L. and Fraser, T.M. Changes in driver steering control with learning. *Human Factors Journal*, Vol. 22(4), 1980.
4. Moskowitz, H. and Smiley, A.M. The effects of chronically administered buspirone and diazepam on driving-related skills performance. *Journal of Clinical Psychiatry*, Vol. 43 (12, 2), 1982.
5. Smiley, A.M., Moskowitz, H. and Ziedman, K. *The effects of marijuana, diazepam and secobarbital, both alone and in combination with alcohol, on driving simulator performance.* DHHS Publication No. (ADM) 35-1386, 1985.
6. Smiley, A.M., Moskowitz, H. Effects of long-term administration of buspirone and diazepam on driver steering control. *The American Journal of Medicine*, Vol. 80, 1986.
7. Smiley, A.M. Marijuana: On road and driving simulator studies, *Alcohol, Drugs, and Driving*, Volume 2(3, 4), 1986.
8. Smiley, A. Assessment of drug effects on driving performance using on-the-road studies; in *Drugs and Driving*, J. O'Hanlon, J.J. de Gier (Eds.), 1986.
9. Smiley, A. Effects of minor tranquilizers and antidepressants on psychomotor performance, in *Journal of Clinical Psychiatry* 48, 22-28, 1987.
10. Smiley, A. Measurement of the effects of alcohol, drugs and other stressors on driving behaviour, in *Drugs and Driving II*, J. O'Hanlon, J.J. de Gier (Eds.), 1987.
11. Smiley, A. and Brookhuis, K.A. Alcohol, drugs and traffic safety, in *Road Users & Traffic Safety*, J.A. Rothengatter and R.A. deBruin (Eds.), 1987.
12. Smiley, A.M., Persaud, B., Hauer, E., and Duncan D. Accidents, convictions, and demerit points: an Ontario driver records study, in *Transportation Research Record*, 1238, 53-64, 1989.
13. Smiley, A. Cognitieve vaardigheden bij het autorijden, in *Handboek Sociale Verkeerskunde*, C.W.F. van Knippenberg, J.A. Rothengatter, J.A. Michon (Eds.), 1989.
14. Smiley, A. The Hinton rail crash, in *Accident Analysis and Prevention*, Vol.22 (5), 443-455, 1990.
15. Michon, J.A., Smiley, A., and Aasman, J. Errors and driver support systems, in *Ergonomics*, Vol. 33 (10/11), 1215-1229, 1990.

16. Chipman, M.L., MacGregor, C.G., Smiley, A., and Lee-Gosselin, M. Time vs. distance as measures of exposure in driving surveys, in *Accident Analysis and Prevention*, Vol. 24(6), 679-684, 1992.
17. Smiley, A., Dewar, R.E., MacGregor, C.G., Kawaja, K.M., and Blamey, C. Development of bilingual freeway exit sequence signs. *Transportation Research Record*, 1456, 11-19, 1994.
18. George, C.F.P., Flaherty, B.A., Boudreau, A.C., and Smiley, A. Comparison of simulated driving performance in narcolepsy and sleep apnea patients. *Sleep Research* 24A, pg. 304. 1995.
19. George, C.F.P., Boudreau, A.C., and Smiley, A. Comparison of simulated driving performance in narcolepsy and sleep apnea patients. *Sleep*, 19(9), pp. 711-717. 1996.
20. George, C.F.P., Boudreau, A.C., and Smiley, A. Simulated driving performance in patients with obstructive sleep apnea. *American Journal of Respiratory and Critical Care Medicine*. Vol. 154, Issue 1, pp. 175-181, July, 1996.
21. Smiley, A. Overview and methodologies of the ITS safety evaluation process. *ITS Quarterly*, Vol. IV, pp. 31-42. 1996.
22. George, C.F.P., Boudreau, A.C., and Smiley, A. Effects of nasal CPAP on simulated driving performance in patients with obstructive sleep apnea. *Thorax*, 52(7), pp. 648-653. 1997.
23. Smiley, A., MacGregor, C., Dewar, R.E., and Blamey, C. Evaluation of prototype highway tourist signs for Ontario. *Transportation Research Record*, 1628, 34-40. 1998.
24. Smiley, A., MacGregor, C., Chipman, M., Kawaja, K., and Tasca, L. Seasonal variations in the age-related collision risk of Ontario drivers. *Transportation Research Record*, 1635, 58-62. 1998.
25. Smiley, A. Marijuana: On-road and driving simulator studies. *The Health Effects of Cannabis*, pp. 171-191. H. Kalant, W. Corrigall, W. Hall and R. Smart (Eds.) Published by the Centre for Addiction and Mental Health, Toronto, Canada. 1999.
26. George, C.F.P. and Smiley, A. Sleep apnea and automobile crashes. *Sleep*, 22(6), pp. 790-795. 1999.
27. MacGregor, C., Smiley, A., and Dunk W. Identifying gaps in child pedestrian safety: Comparing what children do with what parents teach. *Transportation Research Record*, 1674, pp. 32-40. 1999.
28. Smiley, A. Behavioral adaptation, safety and ITS. *ITS Quarterly*, Vol. VIII, Number 1, pp. 21-31, 2000.
29. Smiley, A. Behavioral adaptation, safety and intelligent transportation systems. *Transportation Research Record*, 1724, pp. 47 – 51. 2000.
30. Smiley, A. Chapter 6: Fatigue and driving. In *Human Factors and Traffic Safety*, Paul Olson and Robert Dewar (eds.), Lawyers & Judges Publishing Company, Inc. Tucson, Arizona. 2002.

31. Sinclair, D.R., Chung, F., and Smiley, A. General anesthesia does not impair simulator driving skills in volunteers in the immediate recovery period – a pilot study. *Canadian Journal of Anesthesia*, Vol. 50(3), pp. 238-245. 2003.
32. Bahar, G., Mollett, C., Persaud, B., Lyon, C., Smiley, A., Smahel, T., and McGee, H. Safety evaluation of permanent raised pavement markers. NCHRP Report 518, Transportation Research Board, Washington, D.C. 2004.
33. Smiley, A. Adaptive strategies of older drivers. In *Transportation in an Aging Society – A Decade of Experience*. Conference Proceedings 27, technical papers and reports from a conference in Bethesda, Maryland held November 7 – 9, 1999. Transportation Research Board, Washington, D.C. 2004.
34. Woodcock, K., Drury, C., Smiley, A., and Ma, J. Using simulated investigations for accident investigation studies. *Applied Ergonomics*, Vol. 36(1), pp. 1-12. 2004.
35. Smiley, A., Smahel, T., and Eizenman, M. Impact of video advertising on driver fixation patterns. *Transportation Research Record*, 1899, pp. 76-83. 2004.
36. Beijer, D., Smiley, A., and Eizenman, M. Observed driver glance behavior at roadside advertising signs. *Transportation Research Record*, 1899, pp. 96-103. 2004.
37. Lerner, N., Llaneras, R., Smiley, A. and Hanscom, F. Comprehensive human factors guidelines for road systems. *Research Results Digest 296*. Transportation Research Board, Washington, D.C. April 2005.
38. Lerner, N., Llaneras, R., Smiley, A. and Hanscom, F. Comprehensive human factors guidelines for road systems. NCHRP Web-Only Document 70 (Project 17-18[08]). Transportation Research Board, Washington, D.C. March 2005.
39. Orris, P., Buchanan, S., Smiley, A., Davis, D., Dinges, D., and Bergoffen, G. Literature review on health and fatigue issues associated with commercial motor vehicle driver hours of work. Commercial Truck and Bus Safety Synthesis Program, Synthesis 9. Transportation Research Board. 2005.
40. Smiley, A., Persaud, B., Bahar, G., Mollett, C., Lyon, C., Smahel, T. and Kelman, W.L. Traffic safety evaluation of video advertising signs. *Transportation Research Record*, 1937, pp. 105-112. 2005.
41. Smiley, A. Chapter 6: Fatigue and driving. In *Human Factors and Traffic Safety (2nd Ed.)*, Paul Olson and Robert Dewar (eds.), Lawyers & Judges Publishing Company, Inc. Tucson, Arizona. 2007.
42. Grotenhermen, F., Leson, G., Berghaus, G., Drummer, O.H., Krüger, H.P., Longo, M., Moskowitz, H., Perrine, B. Ramaekers, J.G., Smiley, A., and Tunbridge, R. Developing limits for driving under cannabis. *Addiction*, Vol. 102 (12), pp. 1910-7. 2007.
43. Smiley, A., Robinson, J., Millen, G. and Caird, J. Evaluation of a complex at-grade railway crossing design using a driver simulation. In the *Proceedings of the International Conference on Road Safety and Simulation*, Rome, Italy. November 7 – 9, 2007.
44. Smiley, A. Driver behavior: A moving target. *TR News* 254, pp. 19-24. January – February 2008.

45. Smiley, A. and Dewar, R. Chapter 2 – Road Users. Traffic Engineering Handbook, Sixth Edition, pp. 5-55. Institute of Transportation Engineers. 2009.
46. Smiley, A., Smahel, T., and Donderi, D.C. On-road and laboratory evaluation of bilingual variable message signs. *Advances in Transportation Studies: An International Journal*, B (19), pp. 85-96. 2009.
47. Caird, J., Smiley, A., Fern, L., and Robinson, J. Chapter 38 – Driving simulation design and evaluation of highway-railway grade and transit crossings. *Handbook of Driving Simulation for Engineering, Medicine, and Psychology*. Taylor & Francis Group LLC. 2011
48. Robinson, J.R., Smiley, A., Smahel, T., and Chisholm, G. Design guidance for freeway transitions to signalized intersections: Some application heuristics. Transportation Research Board 88th Annual Meeting Compendium of Papers DVD, Paper #09-2861. 2009.
49. Smahel, T. and Smiley, A. Evaluation of roadway guide signs at Pearson International Airport in Toronto, Canada. *Transportation Research Record*, 2185, pp. 63-70. 2010.
50. Smiley, A. (as a member of the Committee for the Study of Traffic Safety, Lessons from Benchmark Nations). *Achieving Traffic Safety Goals in the United States: Lessons from Other Nations*. Transportation Research Board Special Report 300. 2011.
51. Smiley, A., Smahel, T., Courage, C., Fitch, G., and Currie, M. Required letter height for street name signs: An on-road study. *ITE (Institute of Transportation Engineers) Journal*, Vol. 81, No. 7. 2011.
52. Harding, J.R., Chrysler, S.T., Smiley, A., Smahel, T., Pangburn, J.A., Berger, C. and Esch, T. Wayfinding and signing guidelines for airport terminals and landside. Airport Cooperative Research Program Report No. 52, Transportation Research Board, Washington, D.C. 2011.
53. Smahel, T. and Smiley, A. Evaluation of bilingual sign layout and information load prior to implementation of new signing system. *Transportation Research Record*, 2248, pp. 37-44. 2011.
54. Smiley, A. *Human Factors in Traffic Safety*, 3rd Edition. Alison Smiley, Ed. ISBN 13: 978-1-933264-88-2, Lawyers & Judges Publishing Company, Inc., Tucson, Arizona.
55. Smiley, A. and Dewar, R.E. Road Users. *Traffic Engineering Handbook*, 7th Edition, pp. 51-107. ISBN: 978-1-118-76230-1. Wiley Publishing. 2016.

INVITED PRESENTATIONS – 1987 to present

1. Smiley, A. *The measurement of the effects of psychoactive drugs on cognitive skills involved in driving*. Presented at the 2nd International Symposium on Medicinal Drugs and Driving Performance, Maastricht, The Netherlands, June, 1987.
2. Smiley, A., and Brookhuis, K. *Alcohol, drugs, and traffic safety*. Presented at the 2nd International Conference on Road Safety, Groningen, The Netherlands, August, 1987.

3. Smiley A. *Mental workload and information management*. Presented at the IEEE International Conference, Toronto, Canada, September 1989, and at the Transportation Research Board Annual Meeting, Washington, D.C., January, 1990.
4. Smiley, A. *The issue of BAC limits: interpreting findings of experimental studies*. Presented at the 11th International Conference on Alcohol, Drugs, and Traffic Safety, Chicago, 1989.
5. Smiley, A. *To err is human, to forgive design*. Keynote Address, Ministry of Transportation (Ontario), First Annual Conference of Recipients of Research Grants from the Coordination of Traffic Safety, Toronto, May, 1990.
6. Smiley, A. *Alcohol impairment: forensic breath testing for alcohol – an expert's course*. Service for Continuing Education, University of Ottawa, June, 1991.
7. Smiley, A. *Coping with shiftwork*. Workshop presentation at Workplace Health and Safety Conference and Exposition, Toronto, April, 1992.
8. Smiley, A. *To err is human: inattention and driving*. Presented at the 26th Annual Workshop on Human Factors in Transportation, Washington, D.C., January, 1993.
9. Smiley, A. and Leech, J. *Sleep apnea and driving*. Presented at the 26th annual Workshop on Human Factors in Transportation, Washington, D.C., January, 1993.
10. Smiley, A. *Shiftwork scheduling challenges in the workplace*. Presented at the 21st annual meeting of the International Society of Chronobiology, July, 1993.
11. Smiley, A. *Marijuana: on-road and driving simulator studies*. Presented at the Cannabis and Health Conference, Wellington, New Zealand. October, 1993.
12. Smiley, A., Leech, J., and Broughton, R. *Assessment of driving impairment of sleep apnea patients*. Presented at the Sixièmes Entrétiens du Centre Jacques Cartier: Vigilance et Transports: Aspects Fondamentaux, Dégradation et Prévention. December, 1993.
13. Smiley, A. *Introduction to human factors, rear end accidents, fatigue and accident risk*. Presented at the CATAIR Discover Factor H Conference, Mississauga, Ontario, August 18 – 20, 1994.
14. Smiley, A. *Interpretation of operator performance data*. Presented at the U.S. DOT Human Factors Co-ordinating Committee Workshop on Developing Commonality in Operator Performance Measurement Across Modes, Reston, Virginia. September, 1994.
15. Smiley, A. *Overview and methodologies of the ITS safety evaluation process*. Invited presentation to the Workshop on ITS Safety Evaluations, ITS America, Reston, Virginia. May 1 – 2, 1995.
16. Smiley, A. *Three-day course on human factors in accident investigation*. Presented to analysts and reconstructionists of the Sureté du Québec Police – direction de la sécurité routière. Montréal, Québec, Oct. 23 – 25, 1995.
17. Smiley, A. *The ergonomics of shift work*. Presented at the 12th Annual Emergency Medical Conference of Interphase Saskatchewan. Saskatoon, Sask. Nov. 2 – 5, 1995.
18. Smiley, A. *Human performance: cognitive factors*. Presented to the M.Eng. Program in Ergonomics, University of Western Ontario, May 10, 1996.

19. Smiley, A. *Testing driver response to highway signs*. Presented to the M.Eng. Program in Ergonomics, University of Western Ontario, June 7, 1996.
20. Smiley, A. *Comparison of watch rotations: sleep and performance*. Training 2000 Conference, Maritime Institute, Linthicum, Maryland. October 1, 1996.
21. Smiley, A. *To err is human, to forgive, design*. 2nd Annual Ontario Bicycle Conference, Toronto, Ontario, November 23, 1996.
22. Smiley, A. *Shiftwork and Signs of our times*. National Research Council Industry Technical Advisory Program, Waterloo, Ontario, February 18, 1997.
23. Smiley, A. *Driver characteristics and safety*. Human Factors and Highway Safety Conference, Transportation Research Board and Federal Highway Administration. Washington, D.C., March 3 – 4, 1997.
24. Smiley, A. *Reliability of witnesses*. Flight Surgeon Course, Defence Research and Development Canada. 1997 – 2003.
25. Smiley, A., with Dewar, R. and Alexander, G. *Human factors in highway safety*. Two-day course to Insurance Corporation of British Columbia, Vancouver, B.C., May 14 – 15, 1997.
26. Smiley, A. *Evaluation of prototype highway tourist signs for Ontario*. Presented at the 10th Canadian Multidisciplinary Road Safety Conference, Ryerson Polytechnic University, Toronto, Ontario. June 9 – 11, 1997.
27. Smiley, A., with Dewar, R. and Alexander, G. *Human factors in highway safety*. Two 2-day courses to the State Highway Administration, Hanover, Maryland. October 16 – 17 and 20 – 21, 1997.
28. Smiley, A. *Fatigue and driving: the invisible hazard*. Presented to the Driving School Association of Ontario – Conference '98, Mississauga, Ontario. May 8, 1998.
29. Smiley, A., with Dewar, R. and Alexander, G. *Human factors in traffic safety workshop: Improving safety through knowledge of driver limitations*. One 2-day workshop presented at the Annual Conference of the Institute of Transportation Engineers, Toronto, Canada (in conjunction with the Ministry of Transportation in Ontario). August 7 – 8, 1998.
30. Smiley, A. *Driver speed estimation: What road designers should know*. Presented at the Workshop on the Role of Geometric Design and Human Factors in Setting Speed at the 78th Annual Meeting of the Transportation Research Board, Washington D.C. January, 1999.
31. Smiley, A. *Marijuana: On-road and driving simulator studies*. Annual Meeting of the American Academy of Forensic Sciences – Marijuana: A Forensic Symposium, Orlando, Florida. February 16, 1999.
32. Smiley, A. *Fatigue and driving: the invisible hazard*. Presented to the Canadian Fleet Maintenance Seminar, Toronto, Ontario. April 26, 1999.
33. Smiley, A. *Human performance – 1. Cognitive factors; 2. Shiftwork*. Presented to the M.Eng. Program in Ergonomics, University of Western Ontario. May 8, 1999.

34. Smiley, A. (with Anders, H., Bahar, G., Persaud, B., and Hauer, E.) *A multi-disciplinary approach for applying the science of highway safety developed through a public-private-university partnership*. Presented to the 11th Canadian Multidisciplinary Road Safety Conference, Halifax, Nova Scotia. May 9 – 12, 1999.
35. Smiley, A. *ITS and behavioural adaptation*. Presented to the 31st Annual Conference of the Association of Canadian Ergonomists, Hull, Québec. Oct. 13 – 16, 1999.
36. Smiley, A. *Mobility issues*. Presented at the Canadian Council of Motor Transport Administrators Maturing Drivers Workshop, Ottawa, Canada. October 15 – 16, 1999.
37. Smiley, A. *Adaptive strategies of older drivers*. Presented at the Transportation Research Board Conference on Transportation in an Aging Society: A Decade of Experience, Bethesda, Maryland. November 7 – 9, 1999.
38. Smiley, A. *Behavioral adaptation, safety and ITS*. Presented at the 79th Annual Meeting of the Transportation Research Board, Washington, D.C. January 2000.
39. Smiley, A. *Driver abilities as a basis for design standards*. Canadian Society for Civil Engineering 3rd Transportation Specialty Conference, London, Ontario. May 8, 2000.
40. Courage, C., Milgram, P. and Smiley, A. *An investigation of attentional demand in a simulated driving environment*. In *Proceedings of the IEA 2000/Human Factors and Ergonomics Society 44th Annual Meeting*, 336-339. San Diego, CA. October 2000.
41. Smiley, A., Courage, C., Smahel, T., Fitch, G. and Currie, M. *Required letter height for street name signs: An on-road study*. Presented at the 80th Annual Meeting of the Transportation Research Board, Washington, D.C. January 2001.
42. Smiley, A. *Human factors and accident analysis ("There is more to seeing than visibility")*. The Eye & The Auto Forum, Detroit Institute of Ophthalmology. June 2001.
43. Smiley, A. *Contribution of human factors to highway design and operations*. Transportation Association of Canada Annual Conference. Halifax, Nova Scotia. September 2001.
44. Smiley A. *Human factors and pedestrian accidents*. Justice Institute of British Columbia – Police Academy. Vancouver, B.C. October 2002.
45. Smiley A. *Fatigue and driving: the invisible hazard*. Safety Conference of the Communications, Energy and Paperworkers Union of Canada. Richmond, B.C. October 2002.
46. Smiley, A. *Driver adaptation to the road*. Presented at the Seminaire International en Sécurité Routière held by the Association Québécoise du Transport et des Routes, Québec City. June 2003.
47. Smiley, A., Smahel, T., and Eizenman, M. (2004). *The impact of video advertising on driver fixation patterns*. Presented at the 83rd Annual Meeting of the Transportation Research Board, Washington, D.C. January 2004.
48. Smiley, A. *Driver friendly design of real-time messages*. Presented at the ITS Canada Annual Conference & General Meeting, Calgary, Alberta. May 2004.

49. Smiley, A., Houghton, J., and Philp, C. *Highway signing for drivers' needs*. Presented at the 2004 Annual Conference of the Transportation Association of Canada, Québec City. September 2004.
50. Smiley, A., Bahar, G., and Persaud, B.N. *Human factors and safety impacts of delineation countermeasures on two-lane rural roads*. Presented at the 2004 Annual Conference of the Transportation Association of Canada, Québec City. September 2004.
51. Chiu, M., Robinson, J., Boychuk, R. and Smiley, A. *Evaluating the road safety effects of interchange spacing: A multidisciplinary approach*. Presented at the Innovative Intersection and Interchange Designs Session of the 2004 Annual Conference of the Transportation Association of Canada, Québec City. September 2004.
52. Smiley, A. *What is distraction?* Presented at the 2005 International Conference on Distracted Driving. Toronto, Ontario. October 2005.
53. Smiley, A. and Millen, G. *Using a driver simulator for the evaluation of complex at-grade rail crossing designs*. Montréal, Québec. November 2005.
54. Smiley, A., Persaud, B., Bahar, G., Mollett, C., Lyon, C., and Smahel, T. *Traffic safety evaluation of video advertising signs*. Poster presentation at the 84th Annual Meeting of the Transportation Research Board, Washington, D.C. January 2005.
55. Smiley, A. *Driver Behavior – A Moving Target*. Luncheon Talk at Transportation Research Board Annual Human Factors Workshop, Washington, D.C., January 2007.
56. Smiley, A. *Impacts of Driver Fatigue and Distraction on Road Safety*. Presented at the Provincial Ergonomics Meeting of the Workplace Safety and Insurance Board, Toronto, Ontario. October 2007.
57. Smiley, A. *Preventive Medicine: Let's do it on the Road! 2nd Annual Kirk Weber Memorial Lecture* presented by the Department of Anesthesia, Sunnybrook Health Sciences Centre at the McLaughlin Auditorium, Toronto, Ontario. May 2008.
58. Smiley, A. *Human factors causes of collisions: To err is human, to forgive, design*. Presented at the International Conference on Urban Traffic Safety, Edmonton, Alberta, March 2009.
59. Smiley, A., Smahel, T., Boivin, D., Boudreau, P., Remmers, J., Turner, M., Rosekind, M. and Gregory, K.B. *Effects of a fatigue management program (FMP) on fatigue in the commercial motor vehicle industry*. Presented at the International Conference on Fatigue Management in Transportation Operations, Boston, Massachusetts, March 2009.
60. Smiley, A., Smahel, T., Boivin, D., Boudreau, P., Remmers, J., Turner, M., Rosekind, M. and Gregory, K.B. *Effects of a fatigue management program (FMP) on fatigue in the commercial motor vehicle industry*. Presented at the Apnea/Sleep Disorders sessions of the annual convention of the Ontario Trucking Association, Toronto, Ontario, November 19, 2009.
61. Smiley, A. *Driven to distraction*. Presented at the 2nd International Conference on Urban Traffic Safety, Edmonton, Alberta, April 2010.

62. Smiley, A. *Human factors causes of collisions: To err is human, to forgive, design*. Presented at the Halifax Regional Insurance Seminar, Halifax N.S., May 2010.
63. Smiley, A. *Future directions in safety modelling*. Presented at the 4th International Symposium on Highway Geometric Design, Valencia, Spain. June 2010.
64. Smiley, A. *“Failure to see” workplace crashes: Visual factors*. Presented at the Ministry of Labour, Ontario. November 2010.
65. Smiley, A. *“Failure to see” workplace crashes: Information processing factors*. Presented at the Ministry of Labour, Ontario. November 2010.
66. Smiley, A. *Driven to distraction*. Presented at the 9th Annual Alberta Health & Safety Conference and Trade Fair. Edmonton, Alberta. November 2010.
67. Smiley, A. *Wayfinding: Meeting people’s needs*. Presented at the SEGD Wayfinding, Information Systems and Technology Workshop, Toronto, Ontario. April 2011.
68. Smiley, A. *To err is human: When drivers and vulnerable road users meet*. Presented at the Vulnerable Road Users Workshop of the Ontario Good Roads Association in Brampton, Ontario. October 2011.
69. Smiley, A. *Whodunit? Human factors forensics workshop*. Presented at the Transportation Research Board Annual Meeting in Washington, DC. January 2012.
70. Smiley, A., and Smahel, T. *Effect of an advance warning sign on driver behaviour at a passive rail crossing*. Poster presentation at the 91st Annual Meeting of the Transportation Research Board, Washington, DC. January 2012.
71. Smiley, A. *Human factors and intersection safety*. Presented at the Transportation Association of Canada Annual Meeting in Fredericton, New Brunswick. October 2012.
72. Smiley, A. *Human factors in transportation*. Human Factors Workshop at the 92nd Annual Meeting of the Transportation Research Board, Washington, DC. January 2013.
73. Smiley, A. *Safety Concerns: Vehicle User Characteristics*. Workshop 104 – *Designing Safety for All Road Users* – at the 93rd Annual Meeting of the Transportation Research Board, Washington, DC. January 2014.
74. Smiley, A. and Smahel, T. *Human factors evaluation of new pictograph-based messages for bilingual variable message signs*. Presented at the Transportation Association of Canada 100th Annual Conference in Montréal, Québec. September 2014.
75. Smiley, A. and Smahel, T. *Human factors assessment of distraction, workload and traffic safety in relation to bus operator workload during manual stop announcements*. Presented at the Transportation Association of Canada 100th Annual Conference in Montréal, Québec. September 2014.
76. Smiley, A. *Human factors in workplace motor vehicle accidents*. Presented at the Ministry of Labour, Ontario. June 2015.
77. Smiley, A. *Whodunit? Human factors forensics workshop*. Presented at the Transportation Research Board Annual Meeting in Washington, DC. January 2016.

REPORTS AND CONFERENCE PAPERS

Pre-1985:

1973 – 1984 – 18 reports on the following topics:

Car headlighting and target detection (1), car headlighting and fatigue (1), car headlighting and steering response (1), driver experience and performance (1), alcohol and drug effects on driving (10), driving simulation (1), familiarization and driving performance (1), design of a security monitoring interface at Ontario Hydro (1), and highway signing (1).

1971 – 1984 – 10 conference papers on the following topics:

Peripheral vision and task performance (2), drug effects on driving (6), and learning of steering control (2).

1985 to present:

1. Moray, N.P. and Smiley, A. *Human stress in vehicle operation*. Report prepared for Transportation Development Centre, File No. 14D/T8200-3-3544. 1985. Also presented at the Transportation Research Board Meeting, Washington, D.C. January, 1985.
2. Senders, J.W., Moray, N.P., and Smiley, A. *Determination of a method for analysis of operator diagnosis errors*. Report prepared for the Atomic Energy Control Board under Contract No. 02SQ.87055-3-4099. February, 1985.
3. Smiley, A. *Field studies on the effects of marijuana and alcohol on driver performance*. Report prepared for Transport Canada under Contract No. 01SE.T8080-2-1086, February, 1985. Also presented with I. Noy and W. Tostawaryk at the 10th International Conference on Alcohol, Drugs, and Traffic Safety, Amsterdam, The Netherlands. 1986.
4. Smiley, A., and Smith, R.L. *Driving task monitoring to reduce inattention-related accidents*. Report to NHTSA under Contract No. OTNH22-84-R-07080, 1985.
5. Moray, N.P., and Smiley, A. *Development of a human engineering evaluation plan for shipboard integrated machinery control systems advanced development model*. Final report to The Defence and Civil Institute for Environmental Medicine (DCIEM), March, 1986.
6. Smiley, A.M., Hauer, E., MacGregor, C. *Demerit point allocation: a review of the literature*. Draft Report prepared for the Ontario Ministry of Transportation and Communications, April, 1986.
7. Smiley, A. *An ergonomic perspective on the train accident at Hinton, Alberta – February 8, 1986*. Report to the Commission of Inquiry: Hinton Rail Collision, June, 1986.
8. Smiley, A., and Dewar, R. *Changeable message signs: a review of the literature*. Report submitted to the Ontario Ministry of Transportation and Communications, November, 1986.
9. Smiley, A. *An evaluation of the wearing of safety vests by emergency patrollers*. Report submitted to the Ontario Ministry of Transportation and Communications, March, 1987.

10. Robinson, C.D., and Smiley, A. *Driver license suspension: a review of the literature*. Report submitted to the Ontario Ministry of Transportation and Communications, April, 1987.
11. Feher, M.P., Senders, J.W., Smiley, A., and Munhall, K. *An assessment of human factors issues in the safety of Ontario Hydro's nuclear generating stations*. Report submitted to the Ontario Nuclear Safety Review, September, 1987.
12. Smiley, A. *Changeable message signs: a driver preference survey*. Report to the Ontario Ministry of Transportation and Communications, December, 1987.
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14. Smiley, A., and Moray, N.P. *Review of 12-hour shifts at nuclear generating stations*. Final Report prepared for the Atomic Energy Control Board, June, 1989. Also presented at the International Symposium on Shiftwork and Job Demands, Paris, France. July, 1991.
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